#16/Declaration
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 09/824,901
Filing Date 4/02/2001
Inventorship...Burns et al.
Applicant ....Microsoft Corporation
Group Art Unit 2665
Examiner ....D. Ryman
Attorney's Docket No. MS1-095USC4
Title: Content Provider for Pull Based Intelligent Caching System

DECLARATION UNDER 37 C.F.R. § 1.131

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to

my name.

I believe I am the original, first and joint inventor of the subject matter which

is claimed and for which a patent is sought on the invention entitled "Content

Provider for Pull Based Intelligent Caching System," as identified above.

The invention was conceived and reduced to practice in the United States

prior to January 16, 1996, the earliest of the filing dates of U.S. Patent No. 5,732,078

to Arango, and U.S. Patent No. 5,790,935 to Payton..

Attached to this declaration is a redacted invention disclosure document

which evidences that the invention was conceived and reduced to practice before

January 16, 1996, which predates the filing date of both the Arango and Payton

patents.

All statements made herein of my own knowledge are true, and all

statements made on information and belief are believed to be true. Further, these

statements are made with the knowledge that willful false statements and the like

so made are punishable by fine or imprisonment, or both, under Section 1001 of

Title 18 of the United States Code and that such willful false statement may

jeopardize the validity of the application or any patent issued therefrom.

* * * * * * * * *

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Inventor's Signature: _Paul Leach_____   Date: 3/20/2003

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Full name of inventor: Gregory Burns

Inventor's Signature: _____   Date: _____

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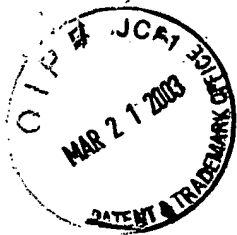
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Introduction

The World Wide Web makes is easy for almost anyone to publish Web pages that contain text and graphics. To date there has been much talk about delivering other media types, particularly audio and video, to date video can only be achieved by downloading an entire video file, which sometimes take hours. Audio can be streamed, that is the audio starts to play before the entire file has been downloaded and continues to keep pace, but the quality is very variable and generally poor.

The people contributing to this invention are (alphabetically):

- Greg Burns (GregBur)
- Paul Leach (PaulLe)

Problem Addressed

- ♦ The Internet bandwidth is a shared resource and the instantaneous bandwidth available to a specific client-server connection fluctuates significantly.
- ♦ There is insufficient aggregate bandwidth on an Internet backbone to support high quality audio or video on a large scale.
- Cable modems and ISDN lines offer a high bandwidth connection between a PC and an Internet Point of Presence. However, the data transfer rate between the POP and the Internet server is constrained by the bandwidth available on the Internet backbone, other intervening networks, and the load on the server itself. This means that users are unable to gain full benefit of high bandwidth connectivity. In particular, users continue to have poor access to interactive multimedia content.

With many POPs requesting data from a popular web server, the link
between that server and the Internet may approach/exceed its bandwidth capacity.

Autobahn will provide a separate broadcast channel (e.g., satellite) between the web server and the POP server, allowing the web server to simultaneously provide data to a large number of POP servers relatively free of bandwidth problems. It is likely that the web server (or an associated server/service) would be responsible for monitoring/predicting content changes at the web server and initiating the broadcasts at those times, freeing the individual Autobahn POPs from responsibility for the task